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Vapor Blast Mfg. Co. v. Pangborn Corporation

United States Court of Appeals, Fourth Circuit

Dec 30, 1950

186 F.2d 230 (4th Cir. 1950) Copy Citation

No. 6175.

Argued November 10, 1950.

231 Decided December 30, 1950. *231

J. Kemp Bartlett, Jr., Baltimore, Md., and Howard A. Hartman, Chicago, Ill. (S.L. Wheeler and H. William Ihrig, Milwaukee, Wis., on brief), for

No. 2,462,480. Only claims 15 and 21 of the patent are here in suit. The District Judge concluded:

"Summarizing our conclusions they are: (1) Defendant's device infringes both of the claims of the Eppler patent in suit, numbers 15 and 21; (2) these claims are sufficiently specific in the light of the specifications; but (3) they are invalid because anticipated by the prior British patent to Mathewson." [93 F. Supp. 792, 798.]

The complaint was, accordingly, dismissed and plaintiffs have duly appealed to us.

The two claims in suit read as follows:

"No. 15 (the method claim). A method of cleaning and polishing which comprises the suspension of a predetermined amount of abrasive particles in a predetermined amount of carrier liquid, circulating the liquid suspension of abrasive particles upon a predetermined path while maintaining the portions of liquid and abrasive approximately constant and maintaining the distribution of the abrasive approximately constant throughout the carrier 232 *232 liquid, and jetting portions of the circulating carrier liquid and abrasive against the surface to be cleaned or polished."

"No. 21 (the apparatus claim): Polishing apparatus comprising a charge of liquid carrier and abrasive particles in suspension therein in approximately fixed portions, a collecting sump, a work support above the sump from which portions of the treating charge will drain into the sump, a nozzle, an air supply connection to the nozzle, an emulsion supply for said nozzle including a circulatory system leading from and returning to said sump and intermediate in communication with the nozzle and means for pumping the

"Another object of the invention is to provide a new type of satin finish on metals, which has important advantages for bearings and other purposes. In bearings the improved finish produced according to the method hereinafter to be disclosed holds an oil film in the bearing more satisfactorily than any other type finish. Moreover, the finish has advantages quite apart from bearings in that it is very attractive and is rust resistant, and shows an increase amounting to as much as five to ten percent in tensile strength as compared with the same parts finished by other methods.

"An important object of the invention lies in the fact that the wide control possible in its use permits of every type of operation from the coarsest rough or deburring cut to the finest honing or polishing. As will hereinafter be more fully explained, the results achieved result from a novel method and apparatus using the abrasive in suspension in a liquid. I am able to deliver up to four to six times as much weight of abrasive material per minute as in any previous fluid-borne abrasive apparatus, at the same time controlling results so effectively as to be able to finish the most delicate parts.

* * * * * *

"The abrasive comprises a liquid carrier having the abrasive material in suspension. In the past, liquids have been used as carriers for abrasive material, but in general the abrasives have been introduced into the carrier at the nozzle, and in no instance has the abrasive been in suspension in the carrier.

"In the sand blasting art the finest abrasive capable of effective use in an air blast has been of the order of 80 mesh, and all attempts to use a liquid vehicle or carrier for abrasives have involved the use of the same sorts of abrasives generally used in pneumatic sand blasting apparatus. I have

work are about 650 to 700 mesh. This is the approximate fineness of talcum powder. The abrasives which I use in the practice of the present invention range all the way from 100 to 2500 mesh, the latter comprising an impalpable powder. The preferred range of sizes is from approximately 200 mesh to approximately 1300 mesh.

"The liquid vehicle is preferably water with chemicals added. In the apparatus disclosed I may, for ordinary work, use 50 pounds of abrasive in a
233 dry state to 50 pounds of the aqueous vehicle. To the *233 water I preferably add a rust inhibiting chemical, such as the product commercially known as Metrolux, which contains trisodium phosphate, sodium chromate, and a form of lime which contains boron.

* * * * * *

"It is very desirable to use air rather than water as a means of imparting energy to the jet delivered from the nozzle. If water were added the character of the emulsion would constantly be changing. It is important to the control of the character of the finish and the amount of metal to be removed that the proportion of water to abrasive in the emulsion be kept relatively constant. Moreover, the fact that I employ chemicals in the emulsion makes it desirable to avoid undue dilution. Since the only water added to the emulsion is that which flushes the packing of the pump, I am able to operate over long periods with a single charge of emulsion without materially changing the specified proportions of the ingredients. However, air would not be as satisfactory to impel the abrasive jet if the air had to do work in delivering the emulsion to the nozzle, as much of the force of the jet would then be lost. It will be noted that the circulation maintained by the pump is such that at all times a supply of emulsion is maintained in the

These seem to be: (1) a metal sump tank in which a predetermined amount of abrasive particles is placed in liquid suspension; (2) a circulatory system by means of which the emulsion is pumped through a pipe from the bottom of the sump tank to a supply tank positioned above the top of the sump tank: one leading from the lower inside part of the supply tank, which acts as a supply line and is described as the secondary circulation line or path, with a nozzle at its lower end; a second outlet, extending from the supply tank to the sump tank, described as the primary path or circulation line, through which the emulsion, by gravity, flows from the supply tank to the sump tank: (4) a nozzle, at the lower end of the first outlet (the secondary path or circulation line) furnished with a compressed air line which ejects, at the desired pressure, the emulsion against the article to be abraded or polished.

The primary object of this circulatory system is to insure constancy in the constitution, agitation and distribution of the emulsion. There is, also, as the emulsion is pumped from the sump tank into the supply tank, a constant renewal of the supply of emulsion, while the emulsion is expended through the nozzle against the object to be abraded or polished.

For centuries, sand and similar gritty substances have been used to clean, scour and polish, and, during the nineteenth century, varying types of pumps were employed as a mechanical means of projecting the sand against the article to be abraded or polished. Since fine sand does not flow easily, due to frictional resistance of its particles, it was not unusual to suspend the sand in water to secure a ready flow. Even in wet sand machines, the sand tends to settle out of liquid suspension if nothing is done to keep the sand stirred. Among the agitating devices commonly employed have been jets of air or steam and mechanically operated paddles. The demand for these wet blast machines appears to have been comparatively small until World War II

allowed. The purported invention described and claimed in the original application was in many respects quite different from that which the patent claims and specifications were ultimately directed.

Pangborn's first attack on the validity of the claims in suit is that these claims are too indefinite. On this point, the District Judge stated:

"As respects the remaining ground of defense to the charge of infringement, namely, that the two claims in suit are not sufficiently definite, we are satisfied that the contrary is true. But, in any event, in view of our finding that Eppler is anticipated by Mathewson, this point becomes immaterial."

And, in the concluding paragraph of the opinion below, we find (as has been already quoted): "these claims are sufficiently specific in the light of the specifications". We think this ruling of the District Court must be upheld.

Under the applicable patent statute, 35 U.S.C.A. § 33, the inventor must "particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery." And, see, Graver Tank Mfg. Co. v. Linde Air Products Co., 336 U.S. 271, 277, 69 S.Ct. 535, 93 L.Ed. 672; United Carbon Co. v. Binney Smith Co., 317 U.S. 228, 236, 63 S.Ct. 165, 87 L.Ed. 232; General Electric Co. v. Wabash Appliance Corporation, 304 U.S. 364, 368, 58 S.Ct. 899, 82 L.Ed. 1402.

True it is that the claims in suit are couched in general terms, with rather broad functional words. Particularly is this true of Claim 15, the process claim. But when, as they must be, these claims are construed in the light of (and narrowed by) the elaborate specifications, the claims live up to the statutory test. We think one skilled in the art would have little difficulty,

considerable commercial success, however, does not render the patent valid. It is true that in cases where the question of patentable invention is a close one, such success has weight in tipping the scales of judgment toward patentability. * * * Where, as here, however, invention is plainly lacking, commercial success cannot fill the void." See, also, Toledo Pressed Steel Co. v. Standard Parts, Inc., 307 U.S. 350, 356, 59 S.Ct. 897, 83 L.Ed. 1334; Sylvania Industrial Corporation v. Visking Corporation, 4 Cir., 132 F.2d 947, 951.

We think it unnecessary to add much to what was said on this question in the opinion below. The District Judge relied heavily in the prior art, on the English patent to Mathewson, No. 6446, granted in 1889. Mention was also made by the District Judge of the United States patents to Tilghman, No. 415,239, granted in 1889, and to Schellenger, No. 2,022,481, granted in 1935. And years before Eppler, the Macleod Company of Cincinnati made and sold machines embodying many of the elements used by Eppler. In Mathewson,
235 Tilghman, Schellenger and Macleod are *235 disclosed a sump for the aqueous suspension of the abrasive material; a pump of some nature to force the suspension from the sump into the nozzle; a drain to effect the return of used suspension to the sump; some conventional agitating means to prevent the abrasive material in the suspension from settling. Other patents in this field are Darling, No. 1,746,228, Fitch, No. 2,277,341, and Doane, No. 2,301,203. It follows that Eppler made little advance over the prior art.

In the Mathewson patent, we find: "The object of this invention is to increase the rapidity of the operation, to secure a finer kind of frosting than heretofore, and to provide apparatus for effecting the same. To this end, I use sand in the form of very fine powder (preferably as fine as flour), mixed with water or other liquid to form a fluid abrasive mud, which can be fed

steamjet, or it may flow in by gravity or be forced in by a pump.

"In order to maintain this mixture in a homogeneous state and prevent the powdered sand from settling, an agitator should be used * * *."

In the light of all these disclosures, there is manifest error in the basic statement in Eppler's patent: "In the past, liquids have been used as carriers for abrasive materials, but in general the abrasives have been introduced in the carrier at the nozzle, and *in no instance has the abrasive been in suspension in the carrier.*" (Italics ours.) And, particularly apposite, in this connection, are the words of Circuit Judge Soper, speaking for our Court, in Remington Rand Business Service, Inc. v. Acme Card System Co., 4 Cir., 71 F.2d 628, 635: "It is not necessary, however, for the purpose in view, that the Anchell patent be considered a complete anticipation to the patent in suit. It is sufficient that it suggests to one interested in the problem the means of solving it. When we consider the result which Soans was striving to achieve, and note the comparative simplicity of the problem, it is clear that it did not require invention to solve it in view of the suggestions in the kindred art contained in the Rudolph and Anchell patents." See, also, New Process Fermentation Co. v. Maus, 122 U.S. 413, 418, 7 S.Ct. 1304, 30 L.Ed. 1193; Gulf Smokeless Coal Co. v. Sutton, Steele Steele, 4 Cir., 35 F.2d 433.

Great stress is laid by Vapor's counsel upon Eppler's overflow pipe and the unique part it plays in Eppler's double-ring primary and secondary circulatory system. And, we are told, Mathewson's overflow pipe was purely accidental and without any anticipatory effect. With this we cannot agree. Normally and naturally, the very idea of a gravity feed tank would suggest an overflow pipe to maintain a constant discharge level. It is not without significance that neither of the Eppler claims in suit, 15 and 21, in terms

(3) they produce the same result in the same branch or field of the same art. In short, here we have a case where it is true, apparently, that Mathewson did not contemplate the intensive, varied uses to which the abrasive art has in more recent years become commercially and very profitably applicable; but he did disclose to the world a machine which will perform these very same modern operations in the same manner as does the Eppler device."

In a very recent case in this field, the Supreme Court has set forth its ideas as to the high standard which must be used in judging what constitutes patentable invention. In Great Atlantic Pacific Tea Co. v. Supermarket Equipment Corporation, 71 S.Ct. 127, 130 Mr. Justice Jackson said: "The function of a patent is to add to the sum of useful knowledge. Patents cannot be sustained, when, on the contrary, their effect is to subtract from former resources freely available to skilled artisans."

And even stronger are the words of Mr. Justice Douglas in the same case: "Every patent is the grant of a privilege of exacting tolls from the public. The framers plainly did not want those monopolies freely granted. The invention to justify a patent had to serve the ends of science — to push back the frontiers of chemistry, physics, and the like; to make a distinctive contribution to scientific knowledge. That is why through the years the opinions of the Court commonly have taken `inventive genius' as the test. It is not enough that an article is new and useful. The Constitution never sanctioned the patenting of gadgets. Patents serve a higher end — the advancement of science. An invention need not be as startling as an atomic bomb to be patentable. But it has to be of such quality and distinction that masters of the scientific field in which it falls will recognize it as an advance." 71 S.Ct. page 131.

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